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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,369	11/21/2001	Richard Lee	0915-P-10825	2770

4586 7590 10/07/2003

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3458 ELLICOTT CENTER DRIVE-SUITE 101
ELLICOTT CITY, MD 21043

EXAMINER

SICONOLFI, ROBERT

ART UNIT	PAPER NUMBER
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3683

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,369

Applicant(s)

LEE, RICHARD

Examiner

Robert A. Siconolfi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 4-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Amendment filed on 6/19/03 has been received. Change of Address filed on 6/19/03 has been received. Power of Attorney filed on 6/19/03 has been accepted.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narita.

Narita discloses a metal alloy shaft 2 with a ceramic bearing 1. Narita et al does not the relative hardness values of the materials. HRC 50-60 is a common hardness for metals such as steel and alloys. HRC 90 is a common hardness for Silicon Nitride. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the relative hardness (which are well known and common values) values claimed as such is merely a design choice based on use of the product.

Narita also discloses a ball type of bearing. Narita et al does not disclose a sliding bearing or bushing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a sliding bearing instead of a ball bearing as such is merely a design choice based on factors like manufacturability and cost. Ball bearings

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are expensive due to the high tolerances needed for the balls. Furthermore, sliding bearings and ball bearings are functional equivalents.

Regarding claim 8, this is a product by process claim and thus will be treated according to MPEP 2113.

Regarding claim 5, Narita et al teaches a metal shaft and a ceramic bearing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a ceramic shaft and a metal bearing as such is merely a design choice based on cost and manufacturing among other engineering considerations. The interface between the two elements would be the same in either setup and therefore would not effect the functioning of the device.

4. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schicktzan et al (U. S. Patent no. 5,380,112).

Schicktzan et al discloses a metal shaft 1 with a silicon carbide ceramic sleeve 2.

Schicktzan et al does not disclose the relative hardness values of the materials. HRC 50-60 is a common hardness for metals such as steel and alloys. HRC 90 is a common hardness for Silicon Carbide (has a Vickers hardness of 2400 which is equivalent to HRC 90 though a reading of 90 is well above the suggested range of the Rockwell C scale). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the relative hardness (which are well known and common values) values claimed as such is merely a design choice based on use of the product.

Regarding claim 8, this is a product by process claim and thus will be treated according to MPEP 2113.

Regarding claim 5, Schicktanz et al teaches a metal shaft and a ceramic bearing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a ceramic shaft and a metal bearing as such is merely a design choice based on cost and manufacturing among other engineering considerations. The interface between the two elements would be the same in either setup and therefore would not effect the functioning of the device.

Response to Arguments

5. Applicant's arguments filed 6/19/03 have been fully considered but they are not persuasive. Applicant argues that Schicktanz et al teaches a clearance between the shaft and the bearing and therefore does not disclose "shaft... slidably engaging... inner surface of ... bearing" . This is clearly incorrect. The shaft clearly contacts the sleeve and thus is slidably engaging the sleeve. The instant invention must also have some clearance or the shaft would be press fit into the sleeve and could not rotate separately from the sleeve.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within


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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Siconolfi whose telephone number is 703-305-0580. The examiner can normally be reached on M-F 10 am-3 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on (703) 308-3421. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.


Robert A. Siconolfi
Examiner
Art Unit 3683

RS